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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,910	09/12/2003	Alexander Kosyachkov	SMBZ 2 01006	8324
27885	7590	05/05/2005	EXAMINER	
FAY, SHARPE, FAGAN, MINNICH & MCKEE, LLP 1100 SUPERIOR AVENUE, SEVENTH FLOOR CLEVELAND, OH 44114			THOMPSON, CAMIE S	
			ART UNIT	PAPER NUMBER
			1774	

DATE MAILED: 05/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/661,910

Applicant(s)

KOSYACHKOV, ALEXANDER

Examiner

Camie S. Thompson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9/12/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Information Disclosure Statement

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered. There are several references that have been listed on page 2 specification that are not present on the Information Disclosure Statement.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-9, 11, 14- 23, 25, 28-39, 41 and 44-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yano et al., U.S. Patent Number 6,597,108.

Yano discloses an electroluminescent panel that comprises a phosphor structure wherein the phosphor comprises an alkaline earth thioaluminate such as barium magnesium thioaluminate and barium thioaluminate as per instant claims 1-4, 17-18, 31-34 (see column 3, lines 20-68). Additionally, the reference discloses that the phosphor is activated by europium (see column 4,

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lines 1-7). The reference discloses that the El panel has the structure: a predetermined pattern of lower electrodes formed on a substrate and a first thick insulating layer (or thick-film dielectric layer) formed on the lower electrodes; a light emitting layer comprising the europium activated barium thioaluminate formed on the first insulating layer; a second insulating layer, which may be silicon oxynitride) is formed on the light emitting layer; and a predetermined pattern of upper electrodes formed on the second insulating layer as per instant claims 11, 14-16, 25, 28-30, 41 and 44-46 (see column 7, line 58-column 9, line 1). Column 9, lines 6-7 of the reference discloses that the second insulating layer (silicon oxynitride) can be deposited by sputtering and has a thickness of about 50 to 1,000 nm as per instant claims 9, 23, and 39. Also, the Yano reference discloses that the phosphor thin film matrix further contains oxygen in the material. Yano does not specifically disclose a silicon oxynitride having a composition of $\text{Si}_3\text{N}_x\text{O}_y\text{H}_z$ where $2 \leq x \leq 4$, $0 < y \leq 2$ and $0 \leq z \leq 1$. The silicon oxynitride of the Yano reference is close in structural similarity to the instant silicon oxynitride composition that it would be obvious to one of ordinary skill in the art that the silicon oxynitride composition of the Yano reference have similar properties of the instant silicon oxynitride composition *in re Payne*, 606 F. 2d 303, 313, 203 USPQ 245, 254 (CCPA 1979). Additionally, the Yano reference does not disclose the ratio of the atomic concentration of magnesium to barium for a magnesium barium thioaluminate phosphor or the atomic ratio of europium to barium or barium plus magnesium as per the instant claims. However, this is an optimizable feature. The amount of magnesium to barium and europium present in the phosphor affect the luminescence and stability of the device. Discovery of optimum values of a result effective variable involves only routine skill in the art *in re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Therefore, it would have been obvious to one of

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ordinary skill in the art to have the ratio of the atomic concentration of magnesium to barium plus magnesium in the range of 0.001 to 0.2 and the atomic ratio of the europium to barium or barium plus magnesium in the range of about 0.005 to about 0.04 in order to have an EL panel that has increased luminescence. Claims 14-15, 28-29 and 44-45 are product-by-process claims. Even though product-by-process claims are limited and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior art was made by a different process. See MPEP 2113. Both the instant invention and the Yano reference disclose an phosphor structure with a rare earth activated alkaline thioaluminate and a silicon oxynitride layer.

4. Claims 1-7, 9-12, 14-21, 23-26, 28-37, 39-44 are rejected under 35 U.S.C. 103(a) as being obvious over Cheong et al., U.S. Pre Grant Publication 2002/0122895.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in

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the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).


Cheong discloses a thick film electroluminescent display that comprises a phosphor that can be europium activated magnesium barium thioaluminate wherein the europium is in an amount of not more than 3 atomic percent based on the amount of magnesium and barium as per the instant claims(see paragraphs 0010-0032). Figure 1 of the Cheong reference discloses that a thin film dielectric is on the top and bottom of the phosphor wherein the thin film dielectric can be silicon oxynitride (see paragraph 0060). Cheong does not specifically disclose a silicon oxynitride having a composition of $\text{Si}_3\text{N}_x\text{O}_y\text{H}_z$ where $2 \leq x \leq 4$, $0 < y \leq 2$ and $0 \leq z \leq 1$. The silicon oxynitride of the Cheong reference is close in structural similarity to the instant silicon oxynitride composition that it would be obvious to one of ordinary skill in the art that the silicon oxynitride composition of the Cheong reference have similar properties of the instant silicon oxynitride composition *in re Payne*, 606 F. 2d 303, 313, 203 USPQ 245, 254 (CCPA 1979). Additionally, the Cheong reference does not disclose the ratio of the atomic concentration of magnesium to barium for a magnesium barium thioaluminate phosphor or the atomic ratio of europium to barium or barium plus magnesium as per the instant claims. However, this is an optimizable feature. The amount of magnesium to barium and europium present in the phosphor affect the luminescence and stability of the device. Discovery of optimum values of a result effective variable involves only routine skill in the art *in re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Therefore, it would have been obvious to one of ordinary skill in the art to have the ratio of the atomic

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concentration of magnesium to barium plus magnesium in the range of 0.001 to 0.2 and the atomic ratio of the europium to barium or barium plus magnesium in the range of about 0.005 to about 0.04 in order to have a thick film electroluminescence device that has increased luminescence. Claims 14-15, 28-29 and 44-45 are product-by-process claims. Even though product-by-process claims are limited and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior art was made by a different process. See MPEP 2113. Both the instant invention and the Cheong reference disclose an phosphor structure with a rare earth activated alkaline thioaluminate and a silicon oxynitride layer.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Camie S. Thompson whose telephone number is (571) 272-1530. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena L. Dye, can be reached at (571) 272-3186. The fax phone number for the Group is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


RENA DYE
SUPERVISORY PATENT EXAMINER
A.U. 1774 4/29/05